

Prism Indoor Remote Unit (IRU) Specifications

900, 1800, 2100 MHz Services



TE's Next Generation of Wireless Solutions for Improving Wireless Capacity, Coverage, Flexibility and Customer Retention

The FlexWave Prism is the most flexible, scalable and complete solution for addressing coverage and capacity needs for current and emerging wireless networks. The industry's first combination of DAS and RRH products, the Prism improves wireless network coverage and capacity by extending services from existing cell sites, to hard-to-reach areas by distributing coverage from a centralized radio suite.

Utilizing a centralized distributed architecture, service providers are able to recognize significant CAPEX/OPEX savings through a shared Base Station Hotel (multiple BTS co-located together), as well as a shared Remote Radio Transceiver approach. The Prism's flexibility and scalability offers service providers an optimal solution for multiple applications such as; dense urban centers, dense suburban areas, campuses, enterprise buildings, subways and tunnels. The Prism's distributed architecture and small form factor allows service providers to cost-effectively increase coverage and capacity in these hard-to-reach areas.

FEATURES AND BENEFITS

Flexible Architecture

- Supports multiple frequency bands and wireless protocols in one enclosure
- Air Interface and BTS vendor independent
- Scalable and modular
- Uses the same Host as the Prism outdoor solution, and InterReach Spectrum indoor solution
- Multiple non-contiguous segments of 1.5 to 75 MHz each
- BTS interface supporting RF and OBSAI/CPRI standards
- In-band 100 Mbps Ethernet backhaul
- Digital Simulcast
- Field upgradeable

User Friendly

- Embedded element management system, supporting web based access and SNMP

Cost Effective

- Efficient use of CAPEX equipment and real estate
- Fast time to revenues/service

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Backhaul efficient Prism IRU enables wireless voice and high-speed data where the users are, while:

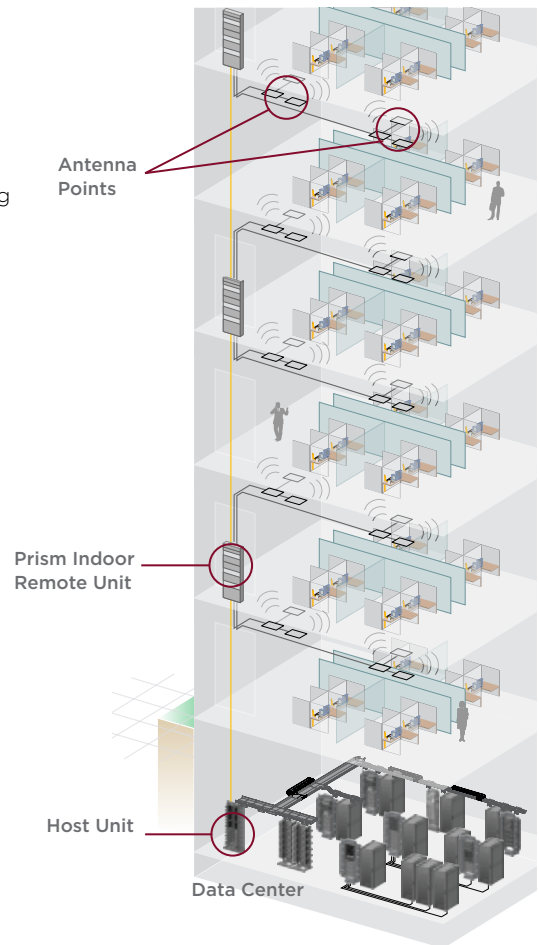
- offering a quick and easy-to-install solution for in-building coverage and capacity
- eliminating zoning challenges within individual properties by utilizing existing rack mount space in telecom closets and data centers
- Keeping costs down as larger areas can be serviced by high power amplifiers
- Simplifies management and lowers life-cycle costs by managing fewer elements

KEY FEATURES

- Same architecture as Prism ORU
- Low Noise Figure
- Same components - LPA, duplexer, DART and SeRF
- Digital RF transport
- Supports 2G, 3G, and 4G
- Supports SISO and MIMO
- Hybrid Fiber Coax (HFC) Application
- Fewer active elements in ceiling where it is less desirable
- Use of TE Rapid Fiber for risers

APPLICATIONS FOR PRISM IRU

- In pilot pollution environments where high-power levels are required to sustain good quality of service, such as tall buildings
- When upgrading passive system for 3G and 4G services; to utilize the existing coax
- In large spaces (low clutter) or venues that have outdoor areas: stadiums, arenas, malls, airports, campus or convention centers
- In facilities that are too expensive or too bound by restrictions, prohibiting in-ceiling elements
- When able to remote the head-end and utilize a BTS hotel

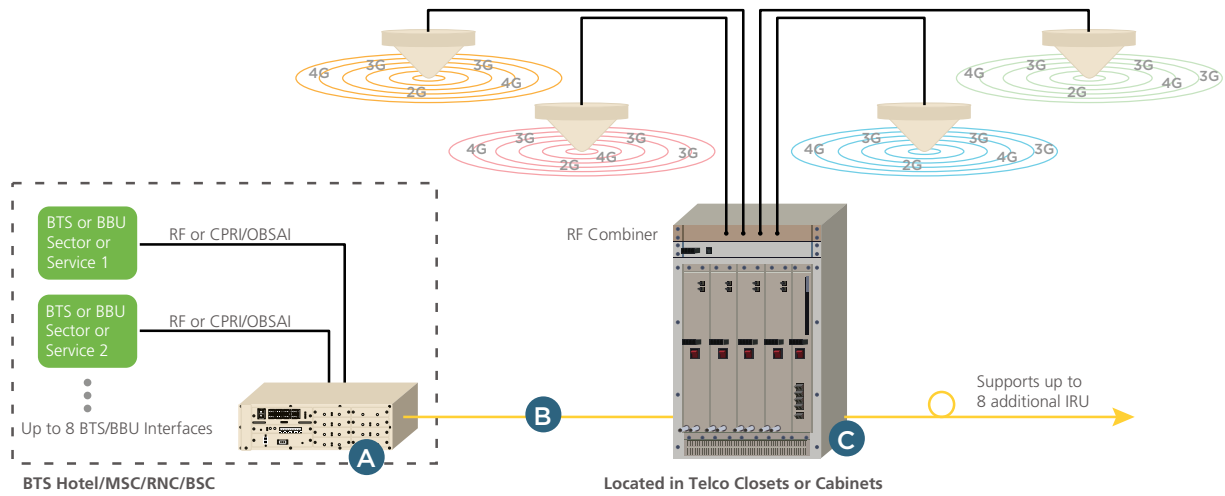


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Prism IRU Architecture

- | | | |
|--|---|---|
| <p>A</p> <ul style="list-style-type: none"> • Space efficient service aggregation point • Up to 8 sectors, 3 RU • Combination of RF, CPRI or both inputs | <p>B</p> <ul style="list-style-type: none"> • Efficient all-digital fiber transport; digital RF, CPRI • In-band 100 Mbps Ethernet backhaul | <p>C</p> <ul style="list-style-type: none"> • Compact multi-service remote unit • Flexible 1 to 4 sectors, 19"/23"/600 mm rack or wall mount • Future ready; vendor, protocol independent |
|--|---|---|



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Host Unit

The rack-mountable FlexWave Prism Host Unit is typically located at a Base Station or a facility housing a suite of Base Stations. On the forward path, the Host Unit receives the RF signals from the BTS and digitizes the designated RF bands and digitally transports them over single mode fiber or a millimeter wave link to the Remote Units. On the reverse path, the Host Unit receives the digitized RF signals from the Remote Unit and converts them back to RF for the BTS. The Prism Host Unit is completely modular in design. Digital/Analog Radio Transceiver (DARTS) are hot swappable providing easy upgrades to additional bands without interrupting existing service.

The Prism Host Unit supports up to eight DART cards (supporting up to eight BTS interfaces) and is capable of simulcasting signals up to as many as eight Remote Units. DART cards are available in either 35 MHz non-contiguous bandwidth or 75 MHz full bandwidth.

A Single SuperDART supports 35MHz of non-contiguous bandwidth across the total bandwidth of a given service. For example, PCS is 70 MHz wide. The Single SuperDART supports up to 35 MHz of bandwidth within that 70 MHz range, including two non-contiguous slices. The Single SuperDART uses a single DART position in the Host and one DART position in the RF Module. This card utilizes up to six time-slots and can be deployed in diversity-receive applications.



Host Unit

The Dual SuperDART supports up to 75 MHz of instantaneous bandwidth. For example, PCS is 70MHz wide. The Dual SuperDART will pass full bandwidth of desired spectrum. The Dual Super DART uses two DART positions in the Host and two DART positions in the RF Module.

The Host Unit utilizes an embedded element management system for system configuration and network monitoring. The embedded EMS collects alarm information from both the Host and Remote Units. For multiple link deployments, multiple Host Units can be networked together at the same BTS site.

In addition to sending alarm notifications to the Element Management System (EMS) through software, the Prism Host Unit also features front panel alarm reporting. LEDs on the front panel of the Host Unit will change color depending on the status of the unit. LED displays provide information regarding the following items:

- Power
- System mode (active/standby)
- Indicate unit fault condition
- RF conditions

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SPECIFICATIONS

RF SPECIFICATIONS

Supported Frequency Blocks:	1-4 per Remote Unit; 1-8 per Host Unit
Bandwidth:	1.5 to 75 MHz non-contiguous
Frequency Band Supported:	See table below
Digital Simulcast:	Up to 8:1 Single Host (can daisy chain Host for higher simulcast)
Diversity Receive:	Yes (Optional) MIMO: 2x2 and 4x4

PROPAGATION DELAY

System Delay:	<12 μ s forward, <12 μ s reverse
Delay Management:	Digital (Manual or Automatic)

REVERSE PATH

Standard Gain Mode	Noise Figure (dB) Typical	Noise Figure (dB) Max	Input IP3 (dBm)
ClassicDART	5	6	>-8
SuperDART	4	5	>-4
High Gain Mode			
ClassicDART	4	5	>-18
SuperDART	3	4	>-14

SYSTEM GAIN

Classic:	36 dB standard gain mode, 38 dB high gain mode
SuperDART:	30 dB standard gain mode, 36 dB high gain mode

OPTICAL SPECIFICATIONS

Optical Budget:	26 dB standard, 13 dB optional
Digital Transport Rate:	3.072 Gbps

OUTPUT POWER AT ANTENNA PORT (dBm)

	Composite Output Power At Antenna Port (dBm)						
	Frequency		Number of RF Carriers				
	TX	RX	1 P-out	2 P-out	4 P-out	8 P-out	16 P-out
E-GSM 900	925 - 960	880 - 915	31	34	37	40	40
P-GSM 900	935 - 960	890 - 915	31	34	37	40	40
DCS 1800	1805 - 1880	1710 - 1785	34	37	40	42	42
UMTS 2100	2110 - 2170	1920 - 1980	42	42	42	42	42

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REMOTE UNIT ENVIRONMENTAL SPECIFICATIONS

Ambient

Temp Rating: 0° C to +45° C (-32° F to +113° F)
Storage Temperature: -20° C to +85° C (-4° F to +185° F)
Humidity: 5% to 85% non-condensing

Remote Unit

Mounting: Wall, 19"/23"/600 mm rack, cabinet
Cooling: Fan
Optical Connectors: Standard LC

Remote Unit	Dimensions (H x W x D)		Weight (Chassis Only)	Weight (Module only)	Volume
	31.2"	19"/23"/600 mm	11.59"	70 lbs.	23 lbs.
79.2 cm	48.3 cm/53.4 cm	29.4 cm	31.75 kg	12.7 kg	.113 cubic M

Remote Unit Power Requirements

Power Supply: -48 VDC nominal, 90-230 VAC optional
Battery Backup: Yes (optional external UPS)
AC/DC Converter: Yes (rackmount option)

HOST UNIT SPECIFICATIONS

Mounting: 19"/23"/600 mm rack
Dimensions (HxWxD): 5.25" x 19" x 19" (13.34 cm x 48.26 cm x 48.26) (3 RUs)
Weight: <25 Pounds (<11 kg)

Host Unit Power Requirements

Power Source: 21 to 60 VDC

Element Management

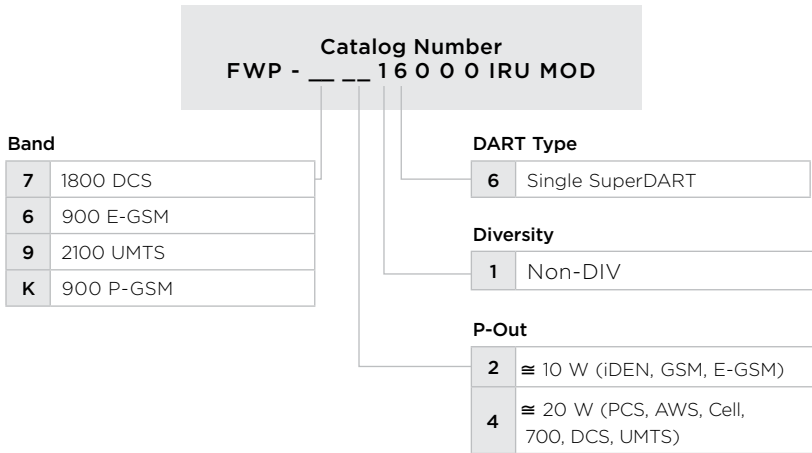
Embedded EMS: Yes
SNMP Based Management: Yes

Note: Unless noted otherwise specifications are typical and subject to change

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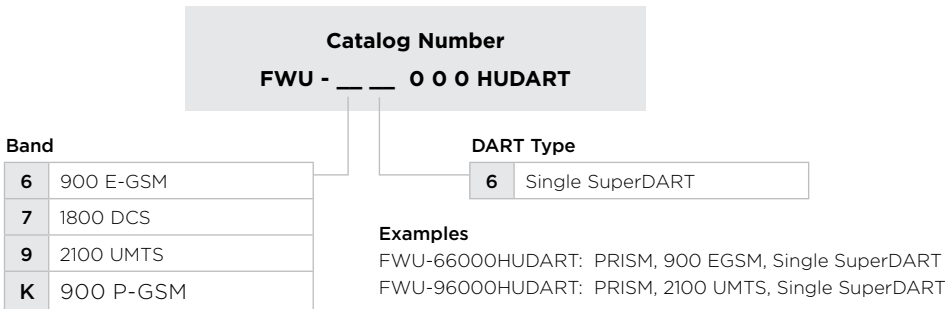
Prism Remote Unit Module Configurator



Examples

FWP-74160001RUMOD: PRISM, 20 W, GSM 1800, Non-diversity, Single SuperDART
 FWP-62160001RUMOD: PRISM, 10 W, E-GSM 900, Non-diversity, Single SuperDART

Prism Host DART Configurator



DATA SHEET



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